

I claim

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1. An apparatus comprising:
 - an excitation source;
 - at least one optically detectable probe directed to an analyte, said probe situated to contact said analyte;
 - a detector for detecting optical properties of said probe, said detector for converting optical signals representative of the detected optical properties to electrical signals;wherein said excitation source, said probe, and said detector are adapted for placement together in an area of interest within a body.
 2. The apparatus of claim 1 wherein said analyte is an oligonucleotide.
 3. The apparatus of claim 1 wherein said analyte is a protein.
 4. The apparatus of claim 1 wherein said probe is fluorescently labeled.
 5. The apparatus of claim 1 wherein said probe is attached to a substrate.
 6. The apparatus of claim 1 wherein said probe is part of a probe array.
 7. The apparatus of claim 5 wherein said probe array is a readable polydeoxynucleotide array.
 8. The apparatus of claim 6 wherein said probe array comprises a plurality of chambers within a frame.
 9. The apparatus of claim 8 wherein said frame comprises a molded material.
 10. The apparatus of claim 8 wherein said frame comprises a foraminous material.
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 11. The apparatus of claim 5 wherein said probe is mixed with an ink to form a probe-filled ink and wherein said probe-filled ink is deposited upon said substrate.
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12. The apparatus of claim 11 wherein said substrate comprises a sheet of plastic material.
13. The apparatus of claim 11 wherein a plurality of probe-filled inks are deposited upon said substrate in a specific ink pattern.
14. The apparatus of claim 13 wherein said ink pattern is protected by a topcoat.
15. The apparatus of claim 14 wherein said topcoat comprises a dissolvable gel.
16. The apparatus of claim 14 wherein said topcoat comprises a polymer material dissolvable only upon application of a solvent.
17. The apparatus of claim 7 wherein said array is positioned adjacent to said detector.
18. The apparatus of claim 17 wherein said detector comprises a spectrometer module.
19. The apparatus of claim 18 wherein said spectrometer module is encapsulated in an at least partly transparent housing.
20. The apparatus of claim 1 wherein said excitation source comprises a light-emitting diode light source.
21. The apparatus of claim 1 wherein said excitation source provides excitation energy wavelengths in a range from about 1100 nm to about 250 nm.
22. The apparatus of claim 1 wherein said detector comprises a photodiode responsive to light emitted by said probe.
23. The apparatus of claim 1 wherein said detector comprises a light wavelength detection system.

24. The apparatus of claim 23 wherein said light wavelength detection system comprises a bandpass filter.
25. ~~The apparatus of claim 1 wherein said excitation source, said probe and said detector are positioned together within a body-insertable device.~~
26. The apparatus of claim 25 wherein said body-insertable device comprises a catheter.
27. The apparatus of claim 25 wherein said body-insertable device defines one or more lumens extending through the length of the body-insertable device.
28. The apparatus of claim 27 wherein said lumen delivers a drug, a reagent or a device to or beyond the distal tip of said body-insertable device.
29. The apparatus of claim 27 wherein said lumen provides suction sufficient to draw an analyte into proximity with said excitation source, said probe and said detector such that said analyte can be analyzed.
30. The apparatus of claim 27 wherein said lumen comprises an infusion lumen.
31. ~~The apparatus of claim 1 further comprising a lumen positioned such that said lumen is capable of introducing to said area of interest a lysing system.~~
32. ~~The apparatus of claim 31 wherein said lysing system comprises an ultrasonic transducer capable of rupturing cell membranes.~~
33. The apparatus of claim 32 wherein said lysing system comprises a pressurization and evacuation system capable of rupturing a cell membrane.
34. ~~The apparatus of claim 31 wherein said lysing system comprises a mechanical lysing device.~~
35. The apparatus of claim 34 wherein said mechanical lysing device comprises a lysing head mounted at the distal end of a driveshaft.

36. The apparatus of claim 35 wherein said driveshaft delivers torque and rotary motion to said lysing head from a proximal motor.
37. The apparatus of claim 25 wherein said body-insertable device comprises an implantable device.
38. The apparatus of claim 37 wherein said implantable device comprises a rotary flexible driveshaft having a therapeutic tip terminating in an anchoring device.
39. The apparatus of claim 38 wherein said implantable device further comprises a separable joint between said therapeutic tip such that said therapeutic tip remains within a body after removal of said body-insertable device.
40. The apparatus of claim 39 further comprising a tether such that said tether remains attached to said therapeutic tip after removal of said body-insertable device.
41. The apparatus of claim 40 wherein said tether is capable of transmitting an electrical signal.
42. The apparatus of claim 25 wherein said body-insertable device is delivered to the area of interest by a carrying device.
43. The apparatus of claim 42 wherein said carrying device is selected from the group consisting of a hollow needle, a guide wire, a balloon catheter, an ultrasound catheter, an introducer sheath, and a balloon angioplasty catheter.

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